

Appl. No. 09/682,363  
Amdt. Dated February 15, 2006  
Reply to Office Action of November 15, 2005

### REMARKS

This reply is filed in response to the office action dated November 15, 2005. Reconsideration of the application and the claims is respectfully requested.

#### Claim Rejections – 35 U.S.C. §103(a)

Claims 20-46, 48 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 4,045,359 (Fletcher et al.) in view of U.S. Patent No. 6,172,427 (Shinohara et al.). The office action also rejected the same claims under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,404,712 (Few et al.) in view of JP2-264101 (JP '101).

In this reply, applicant is amending independent claims 20 and 48. Dependent claims being amended to provide appropriate antecedent basis. New claims 49-58 are being added. Support for the amendment can be found throughout the specification and the drawings. Neither Fletcher et al. nor Shinohara et al., taken together or alone, discloses every element claimed in the pending independent claims as amended. For instance, Fletcher et al. and Shinohara et al. fails to disclose, suggest, or teach at least “the collector comprising at least a conductor whose first surface at least partly bounds the reaction region and whose second surface is in contact with a semiconductor, the thickness of the conductor from the first surface to the second surface being sufficiently thin to permit hot electrons emitted from highly vibrationally excited products to the conductor to travel through the conductor into the semiconductor, charging the semiconductor to a useful forward bias that can be converted into electrical energy, the electrical energy being greater than energy input to the emitter to emit hot electrons that initiate the chemical reactions” as recited in claims 20 and 48. Further, Fletcher et al. and Shinohara et al., alone or in combination, do not disclose, teach, or suggest “the dimension of the reaction region being such that a distance from a geometric center of the

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reaction region to a nearest collector surface is less than three times an energy diffusion length of the highly vibrationally excited reaction products" as claimed in claim 48.

Similarly, Few et al. and JP '101, alone or in combination, fail to disclose, teach, or suggest at least "the collector comprising at least a conductor whose first surface at least partly bounds the reaction region and whose second surface is in contact with a semiconductor, the thickness of the conductor from the first surface to the second surface being sufficiently thin to permit hot electrons emitted from highly vibrationally excited products to the conductor to travel through the conductor into the semiconductor, charging the semiconductor to a useful forward bias that can be converted into electrical energy, the electrical energy being greater than energy input to the emitter to emit hot electrons that initiate the chemical reactions" as recited in claims 20 and 48. Those references also fail to disclose, teach, or suggest "the dimension of the reaction region being such that a distance from a geometric center of the reaction region to a nearest collector surface is less than three times an energy diffusion length of the highly vibrationally excited reaction products" as claimed in claim 48.

Applicant believes that pending dependent claims are also not obvious over the cited references for the same foregoing reasons by virtue of their dependencies.

#### Double Patenting

With respect to the double patenting rejections, when all other rejections are resolved, applicant will submit terminal disclaimers where needed in order to expedite the case into allowance.

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All pending claims are believed to be patentable and a favorable Office Action is hereby earnestly solicited. If a telephone interview would be of assistance in advancing prosecution of the subject application, the Examiner is requested to telephone the number provided below. Please charge any fee due associated with this reply to Deposit Account No. 02-0393.

Respectfully submitted,

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